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## USER'S WIRELESS DEVICE 100

### **BROWSER 102**

UPDATE PRIVACY FEATURES:

(a) Add a local program to permissions list (1) UPDATE YOUR PRIVACY PROFILE

(b) Remove a local program from list

(c) Add a server program to permissions list

(d) Remove a server program from list

(e) Add a network program to permissions list

(f ) Remove a network program from list

(2) UPDATE YOUR PERSONAL DATA

(a) Update server database

(b) Update network database

**KEYPAD 104** 

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

**THREE-AXIS ACCELERATION SENSOR 134** 

FIG. 1A

# **USER'S WIRELESS DEVICE 100**

### **BROWSER 102**

UPDATE PRIVACY FEATURES:

(3) AUTHENTICATE A PROGRAM

(a) Request program's public key certificate

(b) Verify certificate signatures

(c) Verify validity time

(d) Verify revocation status

(e) Check if certificate authority is on trust list (f) Flag program as authenticated

(4) REGISTER A PROGRAM

(a) When can the accesses take place (b) What data can be accessed

**KEYPAD 104** 

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

**FIG. 18** 

USER'S WIRELESS DEVICE 100

MANAGE CONTEXT-ACTIVITY PROFILE: **BROWSER 102** 

(1) AUTOMOBILE

(a) day time radio preferences

(b) night time radio preferences

(c) map display preferences

(d) service station preferences

(2) DINING

(a) restaurant preferences

(b) food preferences

**KEYPAD 104** 

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

FIG. 1C

USER'S WIRELESS DEVICE 100

**BROWSER 102** 

MANAGE CONTEXT-ACTIVITY PROFILE:

(3) ENTERTAINMENT

(a) movie preferences (b) sports preferences

(4) TRAVEL

(a) weather forecasts

(b) airline preferences(c) hotel preferences(d) car rental preferences

**KEYPAD 104** 

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

**FIG. 1D** 

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# USER'S WIRELESS DEVICE 100

**BROWSER 102** 

**REQUEST A RECOMMENDATION:** 

(1) AUTOMOBILE ACTIVITIES

(a) request day time radio recommendation

(b) request night time radio recommendation

(c) request map recommendation

(d) request service station recommendation

(2) DINING ACTIVITIES

(a) request restaurant recommendation

(b) request food recommendation

KEYPAD 104

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

FIG. 1E

# **USER'S WIRELESS DEVICE 100**

**BROWSER 102** 

**REQUEST A RECOMMENDATION:** 

(3) ENTERTAINMENT ACTIVITIES

(a) request movie recommendation (b) request sports recommendation

(4) TRAVEL ACTIVITIES

(a) request weather forecasts

(b) request airline recommendation

(d) request car rental recommendation (c) request hotel recommendation

**KEYPAD 104** 

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

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# **USER'S WIRELESS DEVICE 100**

### **BROWSER 102**

**ACTIVITY: DINING - restaurant** 

**CONTEXT:** 

LOCAL TIME: 2001/05/08/8:00 PM

LOCATION: Beale Street, Memphis, TN

LIGHT LEVEL - Street Lights /Night AMBIENT TEMPERATURE - 22 C

SPEED - ACCELERATION - 0 SERVICE RECOMMENDATIONS:

Joe's Beef Barbecue Restaurant

Elvis' Place

**The Blues Diner** 

#### KEYPAD 104

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

**COMPASS SENSOR 126** 

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

## **USER'S WIRELESS DEVICE 100**

### **BROWSER 102**

ACTIVITY: DINING - restaurant

CONTEXT:

LOCATION: Beale Street, Memphis, TN LOCAL TIME: 2001/06/08/7:30 AM

LIGHT LEVEL - Daylight

AMBIENT TEMPERATURE - 16 C SPEED - ACCELERATION - 0

SERVICE RECOMMENDATIONS: Pancake Restaurant

Betty's Homestyle Breakfast **Great Start Diner** 

#### KEYPAD 104

POSITIONING SENSOR 122

**TOUCH SENSOR 124** 

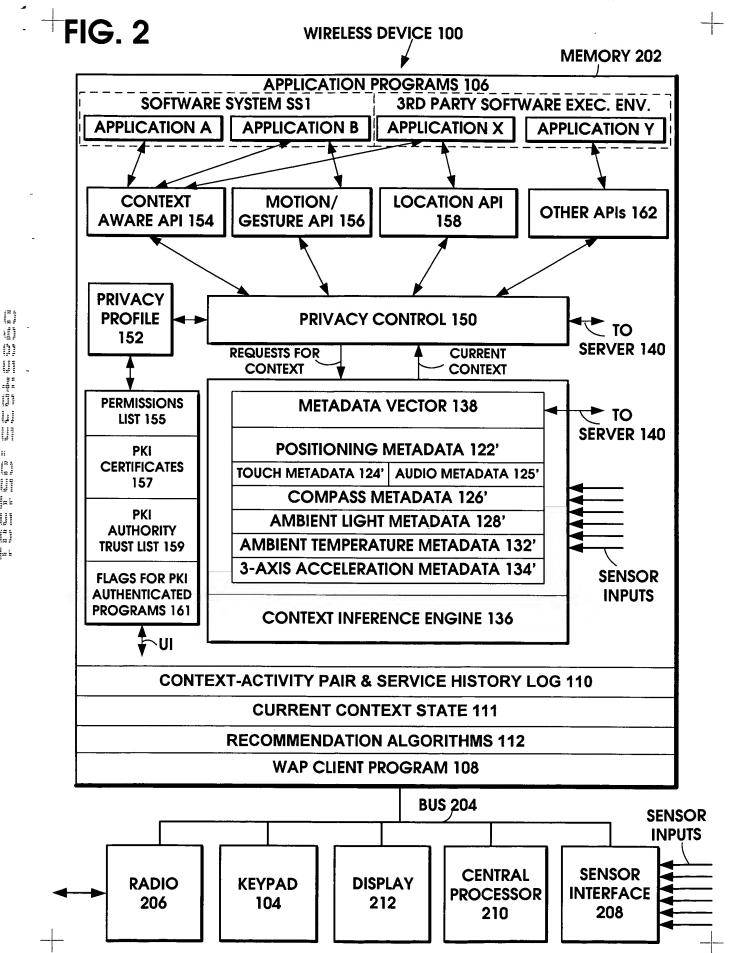
COMPASS SENSOR 126

**AMBIENT LIGHT SENSOR 128** 

**AMBIENT TEMPERATURE SENSOR 132** 

THREE-AXIS ACCELERATION SENSOR 134

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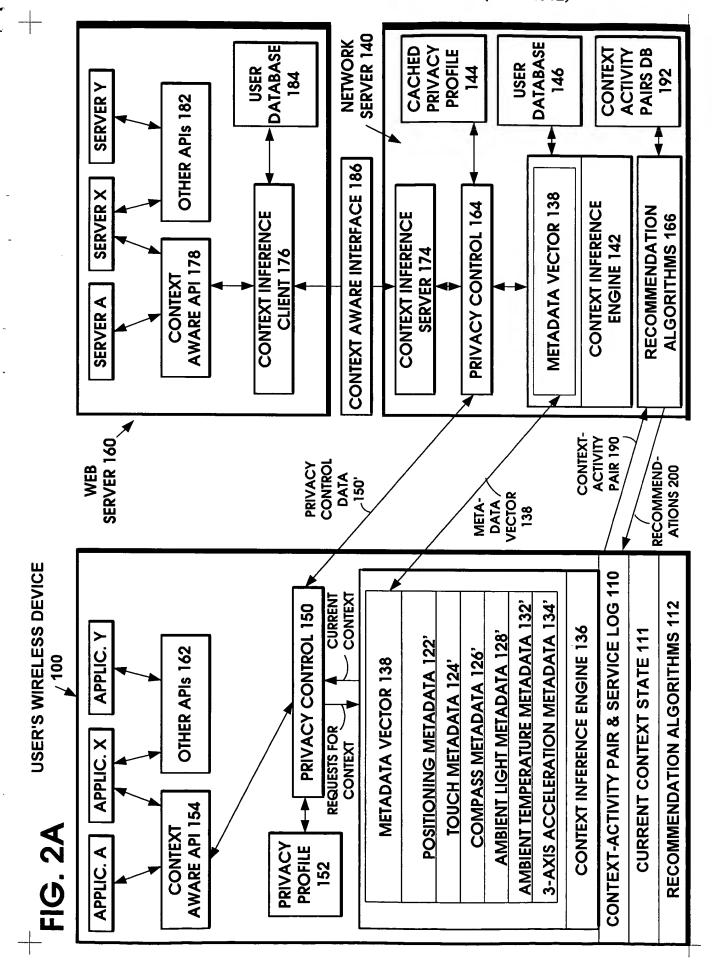
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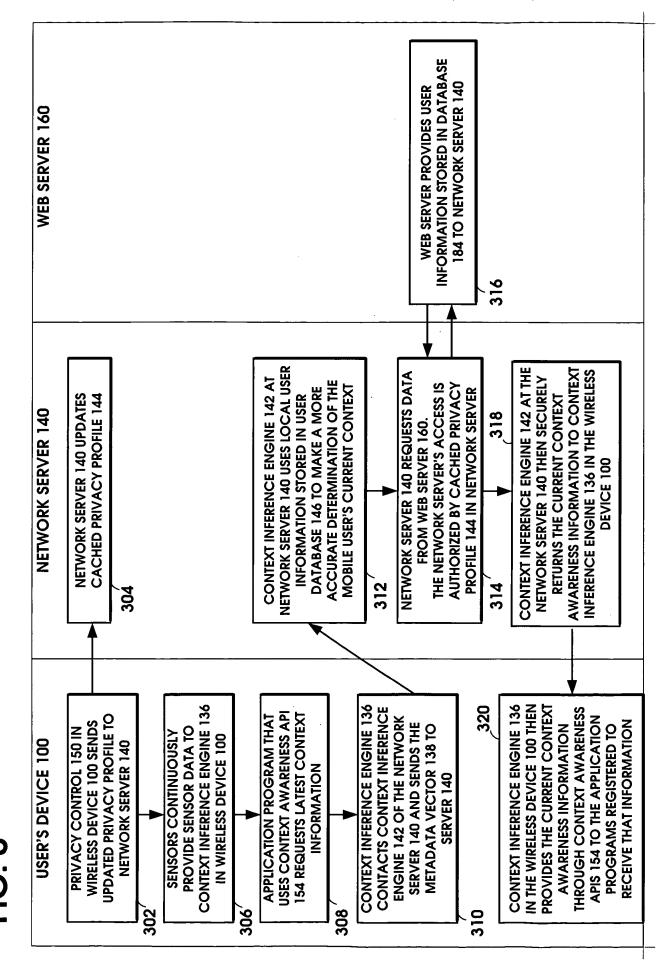
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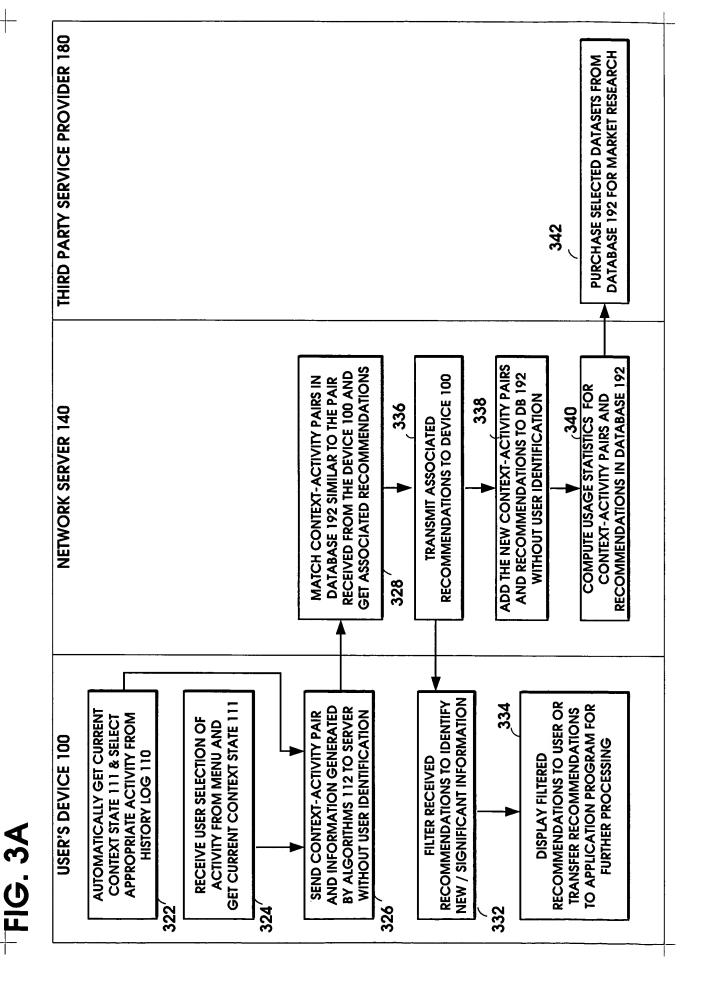
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#### **NUMBER TIMES RECOMMENDED** CONTEXT-ACTIVITY PAIRS AND SERVICES DATABASE 192 IN SERVER 140 R=120R=100 R = 130R = 120R = 150R=20 R=33 R=18 R=25 R=40 SERVICE RECOMMENDATIONS Joe's Beef Barbecue Restaurant Betty's Homestyle Breakfast Dan's Fast Food Restaurant Dan's Fast Food Restaurant The Gourmet Restaurant Mike's Quick Breakfasts Pancake Restaurant **Great Start Diner** The Blues Diner Elvis' Place AMBIENT TEMPERATURE: 15 C - 25 C AMBIENT TEMPERATURE: 15 C - 25 C SPEED - ACCELERATION: 0 - 50 kph SPEED - ACCELERATION: 0 - 50 kph LOCATION: Beale St, Memphis TN LOCATION: Beale St, Memphis TN LOCAL TIME: 5:00 AM - 10:59 AM LOCAL TIME: 6:00 PM - 11:59 PM CONTEXT-ACTIVITY PAIRS LIGHT LEVEL: Daylight **DINING - restaurant** DINING - restaurant LIGHT LEVEL: Night CONTEXT **CONTEXT: ACTIVITY: ACTIVITY:**

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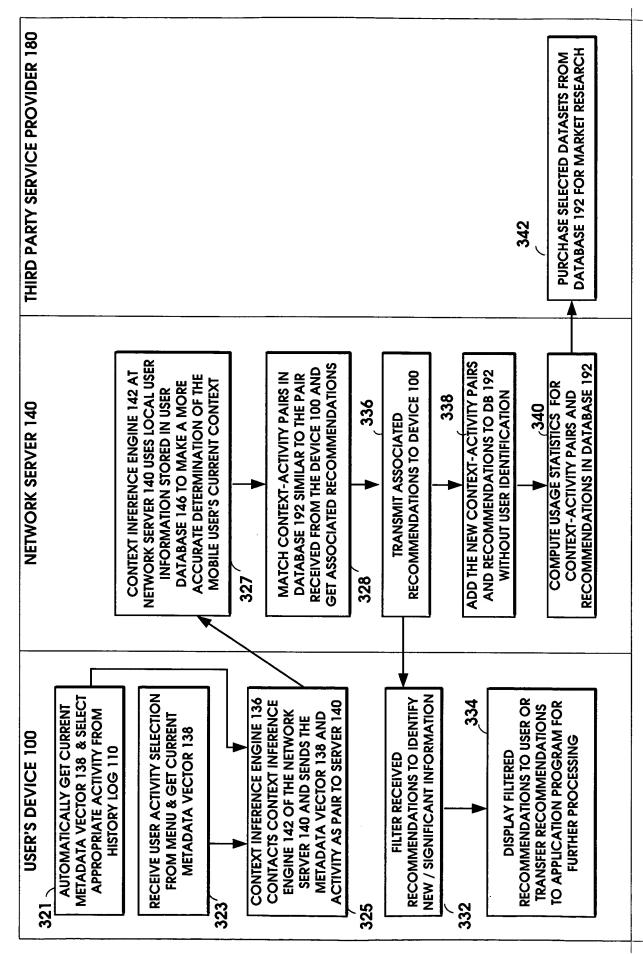
ND BUSINESS PROCESS TO MAINTA PRIVACY IN RECOMMENDATION SYSTEMS - 19173 (4208-4012)

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EXT-ACTIVITY PAIR HISTORY	IN DEVICE 100	IN DEVICE 100	
	HISTORY OF SERVICES USED	RECOMMENDATIONS FROM SERVER	ERVER
	The Gourmet Restaurant (USER'S RATING = 8)	Joe's Beef Barbecue Restaurant	R=20
DINING - restaurant CONTEXT:	Dan's Fast Food Restaurant (USER'S RATING = 6)	Elvis' Place	R=33
LOCAL TIME: 6:00 PM - 11:59 PM LOCATION: Beale St, Memphis TN		The Blues Diner	R=18
LIGHT LEVEL: Night AMBIENT TEMPERATURE: 15 C - 25 C		The Gourmet Restaurant	R=25
SPEED - ACCELERATION: 0 - 50 kph		Dan's Fast Food Restaurant	R=40
ACTIVITY:	Mike's Quick Breakfasts (USER'S RATING = 8)	Pancake Restaurant	R=120
	Dan's Fast Food Restaurant (USER'S RATING = 5)	Great Start Diner	R=100
LOCAL TIME: 5:00 AM - 10:59 AM LOCATION: Beale St, Memphis TN		Betty's Homestyle Breakfast	R=130
LIGHT LEVEL: Daylight AMBIENT TEMPERATURE: 15 C - 25 C		Mike's Quick Breakfasts	R=150
SPEED - ACCELERATION: 0 - 50 kph		Dan's Fast Food Restaurant	R=120
-			

### FIG. 3D



### FIG. 3E

